The Integrated Medical and Dental Electronic Health Record

HIMSS 2009 Annual Conference

April 6, 2009

Col Page W. McNall
Chief Dental Officer, DHIMS

- **DHIMS Chief Dental Officer**
  - ◘ 23 years as an Air Force Comprehensive dentist
    - ● Assignments in clinical dentistry, education, squadron command, and a deployment in support of Operation Enduring Freedom
  - ◘ Functional advocate
- **Program Accomplishments**
  - ◘ AHLTA Block 2 (dental) – DoD's first combined medical/dental electronic health record (EHR)
    - ● 10,500 dental personnel assigned to 362 dental facilities
    - ● Redefined the enterprise-wide normalized business processes and integrated the AHLTA EHR documentation into clinical dental work-stream
    - ● AHLTA dental module successfully passed rigorous developmental, system and operational testing ensuring the product is ready for use in the military dental clinic environment

Agenda

- **DHIMS Overview**

- **Patient Scenario**

- **Benefits**

- **Accomplishments**

- **Challenges**

- **Site Preparation**

- **Training Approach**

- **Sustainment**

- **Repeat the Lifecycle…Future Enhancements**

"To provide a world class health information management system that seamlessly captures, manages and shares health information in support of the military's electronic health record for our Service Members, their families, Combatant Commands and the user community"

DHIMS Sustaining Base Systems and Projects Overview

- **AHLTA**
  - AHLTA 3.3, and 4.0 Convergence
  - AHLTA Dental
  - Health Assessment Review Tool (HART)
  - AMEDD Sponsored Enhancements
  - CDR Upgrade for Oracle and Tuxedo
  - Theater Medical Data Integration (TMDI)
  - Wounded Warrior Initiatives
- **Data Sharing**
  - Federal Health Information Exchange (FHIE)
  - Bidirectional Health Information Exchange (BHIE)
  - Clinical Data Repository/Health Data Repository (CHDR)
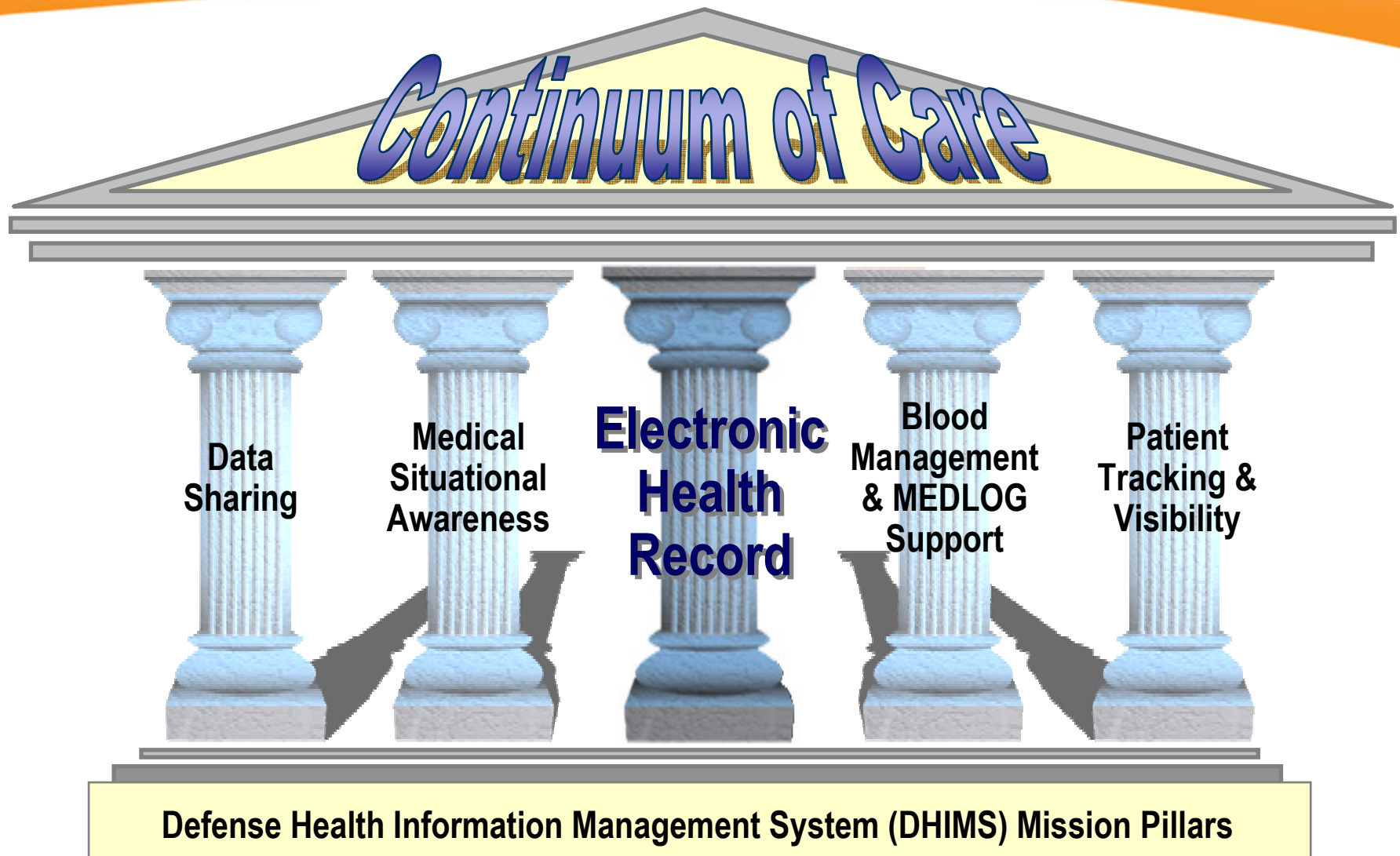 - NDAA El Paso DoD/VA Image Sharing Project
- **Essentris**
- **Legacy Composite Health Care System (CHCS)**
- **Healthcare Artifact and Image Management Solution (HAIMS)**

DHIMS Theater Systems and Projects Overview

- TMIP Block 2 Release 1
- Medical Situational Awareness in the Theater (MSAT)
- AHLTA
  - Theater
  - AHLTA 4.0 Convergence
  - Mobile
  - Warrior
- LOA 2b: Automated Neuropsychological Assessment Metric (ANAM)
- Theater CHCS Cache (TC2)
- Theater Medical Data Store (TMDS)
- Joint Medical Workstation (JMeWS)
- Defense Medical Logistics Standard Support (DMLSS)

- DMLSS Customer Assistance Module (DCAM)
- Patient Movement Items Tracking System (PMITS)
- Deployable Tele-Radiology System (DTRS) LOA 4b:Theater Imaging
- Joint Medical Analysis Tool (JMAT)
- Shipboard Non-tactical Automated Data Processing Program (SNAP) Automated Medical System (SAMS)
- Defense Occupational and Environmental Health Readiness System (DOEHRS)
- Theater Single Sign on and Clinical Context Management
- Expeditionary Framework

Continuum of Care

| Data Sharing | Medical Situational Awareness | Electronic Health Record | Blood Management & MEDLOG Support | Patient Tracking & Visibility |

Defense Health Information Management System (DHIMS) Mission Pillars

Sustaining Base Electronic Health Record (EHR) Footprint Today

■ AHLTA – Worldwide

- ◘ Covers 24 time zones
- ◘ Averages 112,000 additional encounters per day
- ◘ 9.2 million beneficiary records
- ◘ Over 110,000 Desktop Computers
- ◘ US Capitol

■ Essentris (Inpatient notes)

- ◘ 21 Sites (12 MHS)
- ◘ 57% Inpatient Beds

■ AHLTA Dental

- ◘ Dental module is in AHLTA 3.3
- ◘ Initial dental user training planned for February 2009

■ Military Treatment Facilities

- ◘ 70 Hospitals
- ◘ 410 Medical Clinics
- ◘ 362 Dental Clinics

■ Workload Each Week

- ◘ 1.8M Outpatient Encounters
- ◘ 2.1M Prescriptions
- ◘ 103,000 Dental Procedures
- ◘ 18,200 Inpatient Admissions
- ◘ 2,200 Births

Supporting transient patient populations and transient healthcare teams

Annual Dental Examination

- �« Health History review: problem list, allergies, medications, lab values, previous encounters
- ◫ Periodontal screening exam identified patient at high risk for periodontal disease

Comprehensive Periodontal Evaluation

- ◫ Health History review: Poorly controlled Type II Diabetes Mellitus
  - ● Known correlation between poorly controlled Diabetes and active periodontal disease
- ◫ Diagnosed with Generalized Moderate Periodontitis and Locally Aggressive Periodontitis
  - ● Upper right quadrant has deep probing depths on with bleeding and purulence on probing
  - ● Treatment planned for initial deep cleaning followed by surgical phase

■ Urgent Care Visit

◘ Patient reports after hours with dental pain on the upper right and to follow up on Diabetes

◘ Physician reviews Health History

- Problem list, allergies, medications, lab values, previous encounters
- Periodontal disease diagnosis requiring surgery
- Reviews dental progress notes

◘ Clinical decision-making supported by access to both medical and dental patient information

◘ Diagnosis

- Acute Periodontitis

◘ Disposition

- Prescribes antibiotics and pain medication
- Return to Dental Clinic for sick call the next day
- Follow up with Primary Care Provider for Diabetes

- **Dental Sick Call Visit**
  - ◘ Health History review
  - ◘ Dentist reviews previous Urgent Care and dental progress notes
  - ◘ Treatment
    - Local Anesthesia and debridement (deep cleaning on upper right quadrant)
    - Antimicrobial rinse
  - ◘ Patient is scheduled follow on appointment for remaining periodontal needs

AHLTA

■ **AHLTA is the DoD's enterprise-wide health information management system providing secure access to the Service Member and beneficiaries' longitudinal electronic health records**

AHLTA Key Capabilities
- Outpatient encounter documentation
- Dental encounter documentation
- Health History (e.g. allergies, problem list)
- Laboratory, Radiology, Pharmacy and Consults Order Entry, and Results Retrieval
- Preventive Health Maintenance (e.g. immunization)
- Productivity and Health Surveillance Reports
- Basic Clinical Decision Support
- VA-DoD Sharing
  - Bi-Directional Health Information Exchange (BHIE)
  - Theater Health Information

The Next Generation

- **The next generation of AHLTA integrates dental documentation and represents a major milestone in healthcare information sharing**

- **For the first time in the Military Health System (MHS), dental providers will have graphical dental charting capability and point-of-care access to the complete health record**

Integrated Medical/Dental Electronic Health Record

- **As the evidence of dependencies between the dental and medical communities continue to be revealed, the integrated health record will be essential in determining treatment and evaluating outcomes for a total "Quality of Care" solution**
  - �(«») Improves the sharing of patient healthcare information
    - Accessible to all DoD medical and dental providers
    - Multiple providers can view the same patient information concurrently
  - ◙ All healthcare providers use the same software application
  - ◙ Stores medical and dental information in the same system
  - ◙ Creates opportunities to reinforce health promotion and disease prevention activities

Benefits of the Integrated Medical and Dental EHR

- **Provides transparency of real-time health information**
- **Meets a common healthcare objective**
- **Improves patient safety**
- **Improves clinical decision-making**
- **Improves patient outcomes through prevention, early detection, and proper intervention**
- **Provides accurate, thorough, and legible documentation**
- **Reduces medical and dental errors**
- **Establishes a single consolidated Tri-Service dental record**
- **Displays tooth status via color-coded graphics**
- **Captures completed treatment (workload)**
- **Calculates the dental readiness classification**
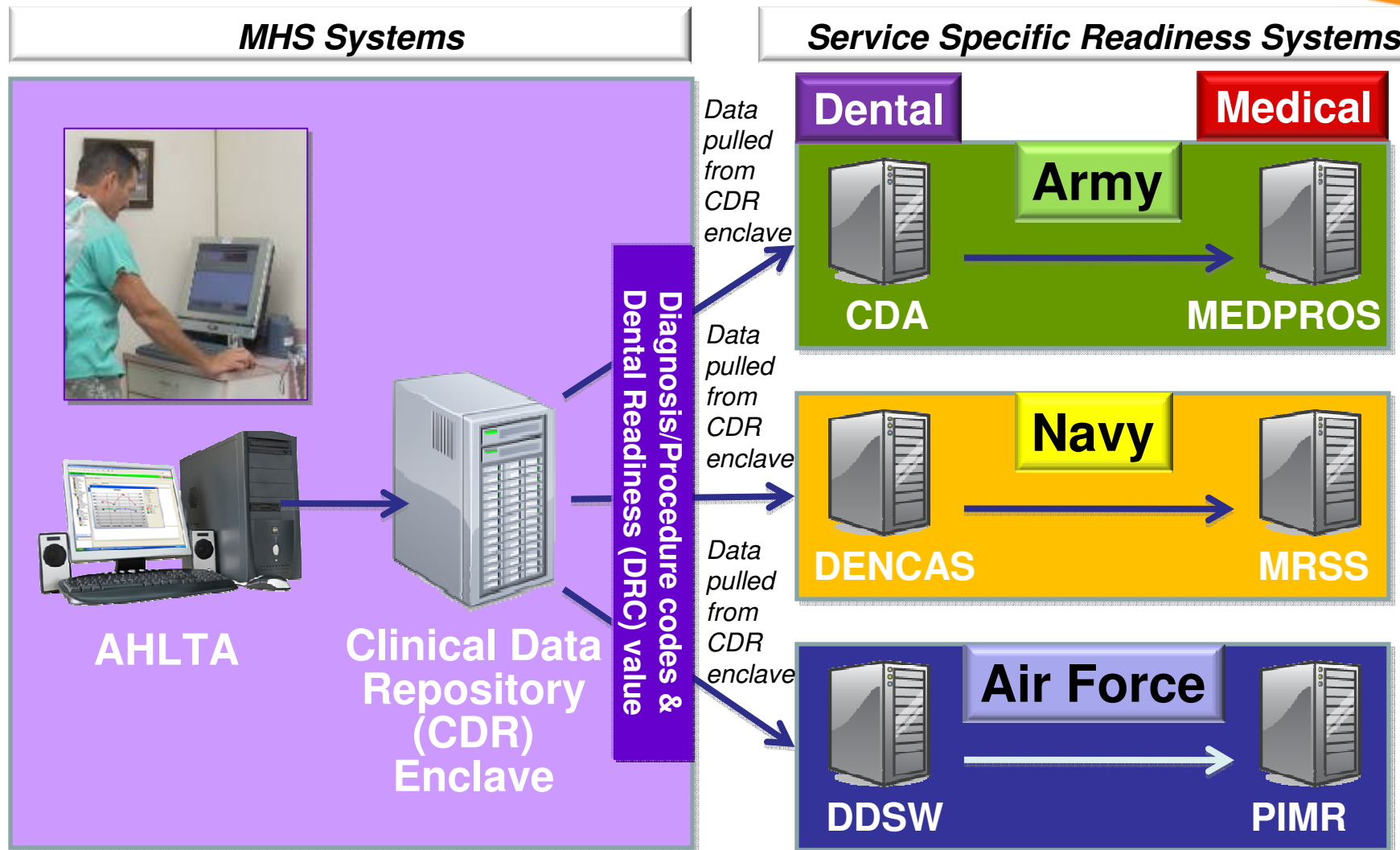
AHLTA Dental

■ **Initial Capabilities:**

  ◙ Accurately documents dental patient care

  ◙ Displays oral status using color-coded graphics

  ◙ Captures diagnosis and procedure codes (workload) as care is documented

  ◙ Automatically calculates Dental Readiness Classification (DRC)

  ◙ Export readiness data, diagnosis and procedure codes to the Services to auto-populate dental business systems

■ **Future Enhancements:**

capabilities currently being met with Service-specific systems

  ◙ Calendar-Based Scheduling capability

  ◙ Health Artifact & Image Management Solution

  ◙ Readiness management with reports

  ◙ Workload management with reports

Dental Data Flow for Readiness and Workload Reporting Systems

MHS Systems

AHLTA

Clinical Data Repository (CDR) Enclave

Diagnosis/Procedure codes & Dental Readiness (DRC) value

Service Specific Readiness Systems

Data pulled from CDR enclave

Dental | **Medical**

Army

CDA | **MEDPROS**

Data pulled from CDR enclave

Navy

DENCAS | **MRSS**

Data pulled from CDR enclave

Air Force

DDSW | **PIMR**

The Future Dental "Paperless" Dental Record

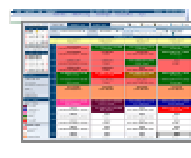**Paper Dental Record** + **Dental Business Management Systems**
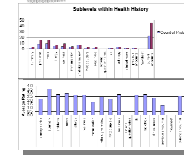
Policy and Business Process Reengineering

AHLTA

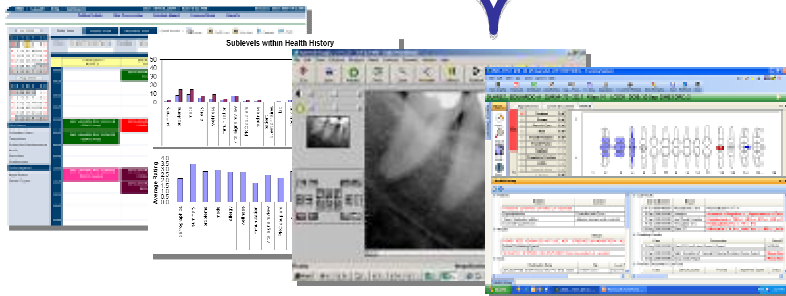**Electronic Forms Tool**

Dental Scheduler & Reports

Imaging (HAIMS)

Dental Workload & Readiness Reporting
Requirements complete

"Paperless" Dental Record
One System meets all needs

=

Service Specific Dental Business Systems
CDA, DENCAS, DDSW

Retire Systems
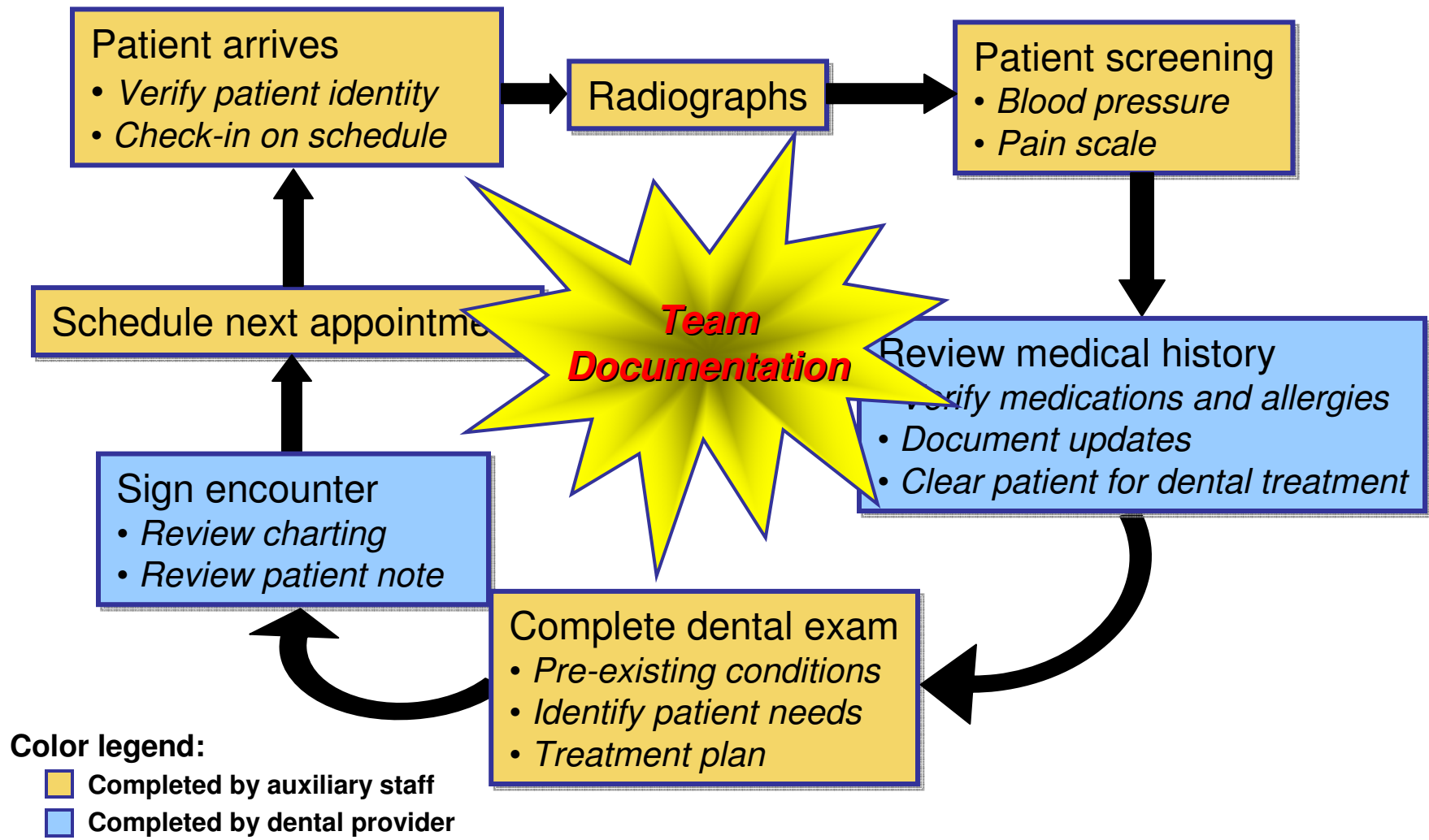
- **Developed dental module in the AHLTA electronic health record**

- **Completed Business Process Reengineering**

  - Identified "best path" clinical workflow

- **Tested product successfully**

  - AHLTA system supports dental functionality

  - Application supports military dental mission

- **Implemented a robust deployment operation process**

  - Team-based approach

  - Training

  - Site preparation

Business Process Reengineering

- **Detailed clinical workflow analysis of documentation process**
  - �«As is" paper record
  - "Transition" using both the paper record and the EHR
  - "To be" EHR

- **Addressed specific user-defined scenarios and process model exceptions**
  - Comprehensive Dental exam
  - High Volume "Mass" Examinations

- **Prioritized Service Guidance Recommendations**
  - Set realistic expectations with respect to balancing staff and clinical workloads
  - Define and adopt policies and procedures required to maintain paper health records during product deployment

The Comprehensive Dental Exam Business Process

Patient arrives
- *Verify patient identity*
- *Check-in on schedule*

Radiographs

Patient screening
- *Blood pressure*
- *Pain scale*

Schedule next appointme...

Team Documentation

Review medical history
- *Verify medications and allergies*
- *Document updates*
- *Clear patient for dental treatment*

Sign encounter
- *Review charting*
- *Review patient note*

Complete dental exam
- *Pre-existing conditions*
- *Identify patient needs*
- *Treatment plan*

Color legend:
- Completed by auxiliary staff
- Completed by dental provider

Challenges

- **Transition from the paper dental record to an EHR**
- **Successful adoption and integration of the EHR in the military Dental community**
- **Enterprise solutions for Service-specific dental business management systems**
- **Dental digital radiology integration**
- **Implementation of AHLTA dental capability into the Theater of Operations**

Communication

- **External Relations**
  - National Conference forums: demonstrations and presentations
  - Military Health System Media Room and website
  - Feature articles and news releases
- **Online Resource Centers**
  - MHS Learn Website-interactive 15-course series
  - Army, Navy, and Air Force AHLTA web portals
  - Uniformed Services Academy of Family Physicians
- **Military Dental Functional Collaboration**
  - Identify and prioritize enhancements for future software releases
  - Develop templates for treatment entries and satisfy Service-specific needs
- **Service Implementation Guidance to standardize the policy and procedures associated with forms ingestion and files management**

Training Approach

- **Effective training critical to successful adoption of the EHR**

- **Development of customized training programs to meet unique dental user community**
  - ◘ Dedicated Deployment Operations team
  - ◘ Web-Based Training
    - Complete first two lessons prior to on-site training
  - ◘ On-site Team-Based Training
    - Classroom Training
    - On-the-Job Training during patient care
    - Comprehensive AHLTA Dental Users' Manual
    - Teach functionality and clinical workflow
  - ◘ Sustainment Training
    - Schedules on-site training

Provider and assistant train together

Keys For Successful Implementation & Integration

- **Create effective communication between medical and dental communities**
- **Define and adopt guidelines on how to implement new capabilities**
  - Electronic consults and signatures
- **Develop super-users and clinical champions**
- **Provide timely and informative communication with staff and patients about upcoming deployment activities**
- **Develop electronic forms to improve usability of AHLTA**
- **Maximize on-site training**
  - Complete Web-based training
  - Attend all on-site training sessions

Key Players Roles & Responsibilities

- **DHIMS Deployment Operations**
  - Serves as primary integrator for all activities
  - Provides a centralized point of contact
- **Implementation & Training Vendor**
  - Configures and test workstations prior to training
  - Provides on-site initial training
- **Tri-Service Infrastructure Management Program Office (TIMPO)**
  - Conducts the technical Network assessments
  - Procures and deploys the workstations and printers
- **Defense Information Systems Agency (DISA)**
  - Manages a secure DoD communication network
  - Ensures redundant Network circuits to support communications

- **Service Chief Information Officer's (CIO) Representatives**
  - Assist and coordinate Service-specific issues
  - Facilitate AHLTA implementation at the treatment facilities
  - Serve as a primary interface between the program office and the Dental clinic
- **Dental AHLTA Champions**
  - Provide guidance on clinical usage per each Service
- **Medical Treatment Facility**
  - Establish a Project Team
  - Coordinate, site preparation, deployment activities

Key Players Roles & Responsibilities – Project Team

- **The Project Team is fundamental to the success of AHLTA implementation and integration**
  - **Project Officer**
    - Coordinates all implementation and training activities on-site
  - **Clinical Champion**
    - Represents the dental clinical users
    - Champions the adoption and integration effort for dental staff
  - **Trainer Coordinator**
    - Ensures staff completes prerequisite Web-based training
    - Schedules on-site training
  - **System Administrator**
    - Monitors and manages on-site server activities related to AHLTA
    - Creates and tests user accounts
  - **Client Administrator**
    - Ensures all workstations are in place, installed, and tested

Schedule

- **AHLTA Dental Implementation & Training Kick-Off Meeting**   (165-Tdate)

- **Site Survey Revalidation Telcon**   (120 & 150-Tdate)

- **90-Day Pre-Implementation Meeting**   (90-Tdate)

- **Training Schedule Meeting**   (75-Tdate)

- **60-Day Pre-Implementation Meeting**   (60-Tdate)

- **Training Schedule Finalization**   (45-Tdate)

- **30-Day Pre-Implementation Meeting**   (30-Tdate)

- **Weekly Implementation Meeting**   (15-Tdate)

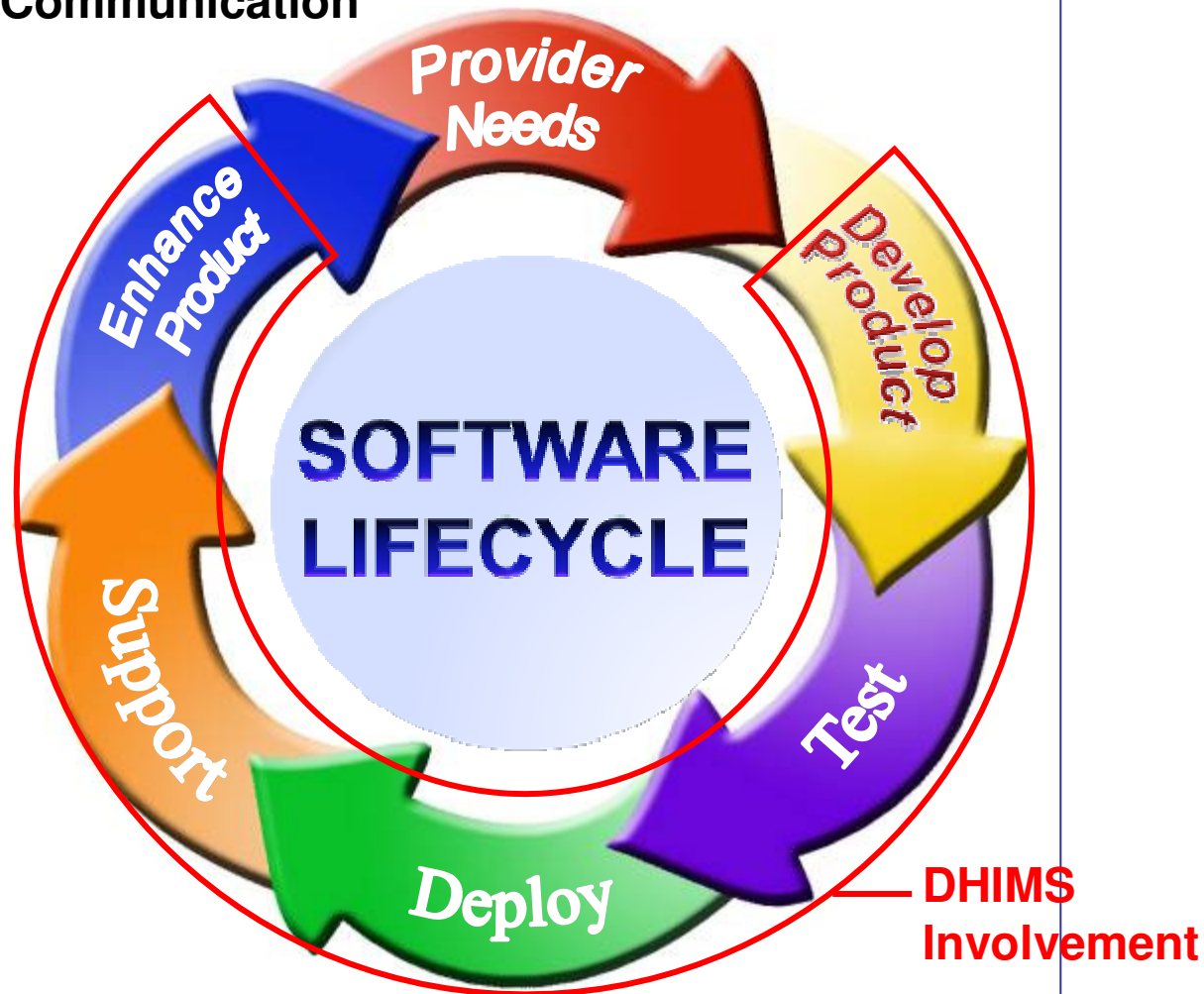- **Morning Status Call & Daily Implementation Meeting**   (7-Tdate)

Tdate = Day on-site training begins

■ **Sustainment training is provided by the site sustainment trainer after initial training is completed**

  ◘ Incoming personnel

  ◘ Refresher training

■ **Training materials**

  ◘ AHLTA Dental Users' Manual

  ◘ Web-based Training

  ◘ Online Resource Centers

Questions???

- Col Page McNall
  DHIMS Chief Dental Officer
  703-998-6900

- The DoD/MHS Booth number is 3668

"Ten years down the road, the most dramatic change in practice will be the use of electronic records and the computerization of the dental practice."

Dr. Joel Glover, chair of the ADA National Health Information Infrastructure Task Force and 14th District trustee (1/2007)